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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PHILADELPHIA, PA 19103-6996

EXAMINER

OLTMANS, ANDREW L

ART UNIT PAPER NUMBER

1742

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,338

Applicant(s)

KIRCHER, THOMAS

Examiner

Andrew L Oltmans

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 9 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 and 7 is/are allowed.
- 6) ☒ Claim(s) 1-4, 10-13 is/are rejected.
- 7) ☒ Claim(s) 5 and 14 is/are objected to.
- 8) ☒ Claim(s) 1-16 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Claims 8-9 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7, filed October 14, 2002.

The examiner maintains that the correct relationship is the one in the previous two Office actions wherein the groups are related by product and process of use. It is noted that claim 8 is an article, which does not have an aluminide coating (a requirement for the article to be made by the process of claims 1 or 6). The article of claim 8 is only a metal substrate having a coating tape disposed over the claimed space. The language "whereby upon heating... an aluminide coating is formed" does not limit the article to an aluminide-coated material, but rather describes a pre-assembly article not having an aluminide coating. With respect to applicant's argument that the alternative use is "unreasonable", the examiner disagrees. Coating a substrate with a coating tape according to the process suggested by the examiner in the Office Action mailed September 12, 2002 is reasonable and is not akin to "a process of filling holes in the ground", as argued by applicant on page 3 of the response. Contrary to applicant's assertion, possible uses of the article include simply a method of protecting the material that is enclosed by the coating material. The use of adhesives also would possibly prevent movement of the coating material that might take place during storage or transportation of the article. All suggested uses are reasonable. Applicant's discussion of the reactivity of the adhesive and the stability is not

relevant because claim 8-9 do not recite those properties. The claim merely recites the article wherein there is a potential of having an aluminide coating in a bound area. Applicant's traversal has been considered, but has not been found persuasive.

2. This application contains claims 8-9 drawn to an invention nonelected with traverse in Paper No. 7, filed October 14, 2002. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

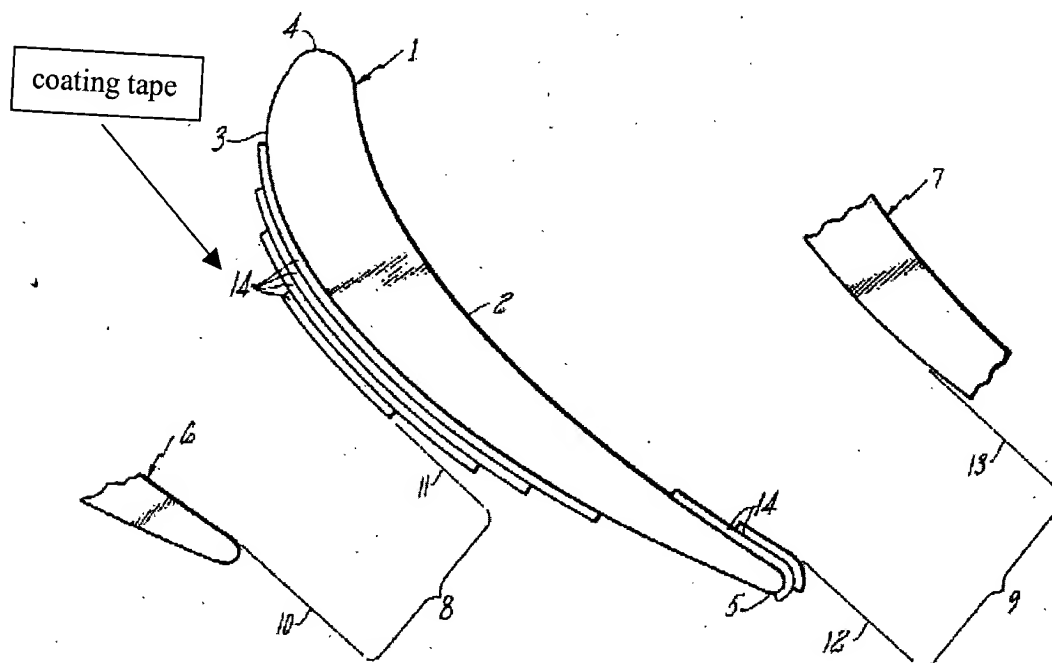
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Draghi et al. 4,726,101 in view of Olson et al. 6,045,863

4. Claims 1-4 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Draghi et al. 4,726,101 (Draghi) in view of Olson et al. 6,045,863 (Olson; cited on IDS filed August 31, 2001).

Draghi teaches a method of repairing cracks and defects in gas turbine engine parts, including turbine vanes (col 1, lines 7-9 and col 2, lines 39-46). Draghi teaches that during service vane surface deteriorate and form cracks or other surface defects (i.e. substrate surfaces bounding a contained space of the substrate), as recited in instant claims 1 and 10 (col 1, lines 40-54 and col 4, lines 44-49). Draghi teaches that a tape of coating material is applied to the

vane over the cracked area (i.e. enclosing the contained space (i.e. the crack) in an out-of-contact relation with the target surface (i.e. crack surface)), wherein the tape can be applied in multiple layers, as recited in instant claims 1 and 10 (col 4, lines 54-64) and (FIGURE):



[emphasis added by examiner]

Draghi teaches that the vane is heated and the binder and adhesive decompose so as to leave no residue and the tape provides a unitary thickened surface wherein the tape material fills in the crack in the covered area (col 4, line 64 to col 5, line 5), as recited in claims 1 and 10.

Draghi fails to meet all the limitations of the instant claims in that Draghi does not explicitly teach the tape composition instantly claimed in claims 1-4 and 10-13.

Olson teaches an aluminide coating tape for use on various metallic substrates, including nickel-based superalloy gas turbine engine blades and vanes (col 3, lines 43-47). Olson further

teaches that the tape includes a binder, a halide activator, an aluminum source and an inert ceramic filler material, as recited in claim 1 (col 3, lines 52-55). Olson teaches that the halide activator includes LiF, as recited in instant claims 3, 4, 12 and 13 (col 4, line 8). Olson teaches an example including the claimed mixture and binder (col 6):

A low activity, outwardly diffusing localized aluminide coating was produced by the following: First, 65.1 wt. % aluminum oxide, 28.2 wt. % chromium aluminum, 0.9 wt. % aluminum tri-fluoride, and 5.7 wt. % polytetrafluoroethylene were mixed together and manufactured into tape form. The thickness of the tape was 0.030 inches (0.076 cm).

inert material

aluminum
source

activator

binder

[emphasis added by examiner]

The amount of aluminum source in the mixture (i.e. aluminum source and activator) is encompassed by the range of aluminum claimed in instant claims 1 and 10 (col 6, line 36-39). The amount of aluminum in the aluminum source (i.e. the Cr-Al alloy) is encompassed by the range of aluminum claimed in claims 1, 4, 10 and 13 (col 4, lines 36-49). Olson teaches that the coating method results in a variety of desirable surface properties (col 6):

The low activity, outwardly diffusing localized aluminide coatings of the invention have excellent resistance to thermal fatigue cracking as well as excellent resistance to oxidation degradation. These coatings can be applied much thinner than high activity, inwardly diffusing localized alu-

[emphasis added by examiner]

(col 7):

minide coatings. The invention also has greater thermal fatigue resistance than that of a high activity, inwardly diffusing localized aluminide coating. Thus, the invention is much more desirable for certain applications such as reducing the propensity for crack formation in superalloy articles of gas turbine engines. 5

[emphasis added by examiner]

One of ordinary skill in the art at the time that the invention was made would have been motivated to use the tape of Olson as the tape in Draghi in order to provide Draghi with all of the desirable surface properties taught by Olson, including thermal resistance to thermal fatigue cracking, excellent resistance to oxidation degradation, thinner coating, greater thermal fatigue resistance and reduction in propensity for crack formation in superalloy articles of gas turbine engines (Olson: col 6, line 63 to col 7, line 6)

Allowable Subject Matter

5. Claims 5 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 6-7 are allowed.

a. A primary reason for allowance of claims 5 and 14, under the above conditions, is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method wherein the method further comprises the step of disposing a masking material onto an area of the metal substrate that is laterally adjacent to the contained space and not within the contained space, as instantly claimed.

b. A primary reason for allowance of claims 6-7 is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method wherein the method includes the steps of positing the claimed tape over a contained space wherein the tape is in an out-of-contact relation with the target surface, disposing the claimed slurry coating composition on the tape and heating the target to the claimed temperature.

Response to Arguments

7. Applicant's arguments filed February 11, 2003 have been fully considered but they are not persuasive. Claims 1-14 remain pending in this application. Claims 8-9 have been withdrawn for being drawn to a non-elected invention. The rejections under 35 USC 103 have been maintained. Newly presented claims 10-13 have also been rejected, as appropriate, under 35 USC 103. In view of the fact that the new ground for rejection (for claims 10-13) is in response to applicant's amendment, this rejection is FINAL.

8. With respect to applicant's argument that claim 1 distinguishes over Draghi in view of Olson because claim 1 ends with a heating step "to thereby form a [] coating on the target surface" (see page 4 of applicant's response), the argument has not been found persuasive. The examiner maintains that the cracks on the surface of Draghi are sufficient to read on the at least partially enclosed space claimed in claim 1 and 10. Further the examiner maintains that Draghi teaches that the vane is heated and the binder and adhesive decompose so as to leave no residue and the tape provides a unitary thickened surface wherein the tape material fills in the crack in the covered area (col 4, line 64 to col 5, line 5). This teaching is sufficient to read on forming a coating on the target surface, as recited in claims 1 and 10. For claim 10, the addition of the

language “at least partially enclosing said contained space” in the last line (see page 5, second full paragraph of applicant’s response), still does not distinguish over the “filling of the crack” (i.e. using the decomposed coating material to coat the enclosed, contained surface (i.e. crack surface)) (col 4, line 64 to col 5, line 5).

9. Applicant’s characterization of the end of Draghi’s method (first paragraph on page 5 of applicant’s response) does not distinguish the claimed method. Even if the crack was fully filled, it is the coating on the target surface that fills the crack. The claim merely requires that there is a coating on the target (i.e. enclosed) surface. The condition or extent of the enclosed space after the method is not claimed. Therefore, the argument is not persuasive.

10. With respect to applicant’s argument that one of ordinary skill in the art would not combine the teachings of Draghi and Olson (page 5, third full paragraph), the argument is not found persuasive. The reason that applicant asserts as the reason that Draghi and Olson cannot be combined is that Draghi is a method to fill cracks and Olson is a method to prevent cracks. However, it is noted that the purposes of Draghi and Olson are nearly identical. Draghi teaches the repair of cracks that have already occurred. Olson also teaches that the tape is used to coat areas that have damage (e.g. cracks) (see e.g. Olson: col 7, lines 7-11). Therefore, the purpose of Draghi and Olson are substantially the same and one of ordinary skill in the art would have been motivated to combine the teachings for the reasons set forth in the previous Office Action.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

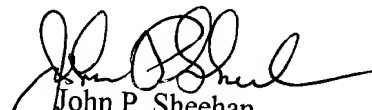
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L. Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached 7:00-3:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


ALO

May 20, 2003


John P. Sheehan
Primary Examiner
Art Unit 1742